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1 APPENDIX 20. EXAMPLE OF NITF STRUCTURE INTEGRATED WITH RPF FRAME FILE
2 STRUCTURE (MOST ELEMENTARY FIELDS OMITTED).
3
4 [NITF file]
5     {1}
6     [NITF file header]
7         {2}
8         [nitf identification and origination group]
9         [nitf security group]
10        <nitf file length>,numr:12
11        <nitf header length>,numr:6
12        [nitf image description group]
13        [nitf symbol description group]
14        [nitf label description group]
15        [nitf text description group]
16        [nitf data extension segment description group]
17        [nitf reserved segment description group]
18        <nitf user-defined header length>,numr:5
19        [nitf user-defined header]
20            {3}
21            <nitf user-defined header overflow>,numr:3
22            <nitf user-defined header data tag>.alph:6
23            <nitf user-defined header data length>,numr:5
24            [nitf user-defined header data] UDHD
25            {4}
26            --> [rpf frame file components]
27                {5}
28                --> [rpf header section]
29            {2}
30            [nitf extended header description group]
31        {1}
32        [nitf image] (0, ... many)
33            {2}
34            [nitf image sub-header]

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35     {3}
36     [nitf identification, security, structure fields]
37     [nitf image geographic location]
38     [nitf comments]
39     [nitf image compression structure]
40     [nitf image band] (1, ... 9)
41     [nitf image table structure fields]
42     [nitf image location]
43     <nitf image magnification>,alnm:4
44     <nitf user-defined image subheader length>,numr:5
45     [nitf user-defined image subheader]
46         {4}
47         <nitf user-defined image subheader overflow>,numr:3
48         <nitf user-defined image subheader tag>.alph:6
49         <nitf user-defined image subheader data length>,numr:5
50         [nitf user-defined image subheader data] UDID
51         {5}
52         --> [rpf frame file components]
53             --> {6}
54             --> [rpf location section]
55             --> [rpf coverage section]
56             --> [rpf color/grayscale section]
57             --> [rpf image description sub-header]
58             --> [rpf related images section]
59     {3}
60     [nitf extended subheader]
61 {2}
62 [nitf image data]
63     {3}
64     <nitf spatial data offset>,uint:4
65 --> [nitf-rpf frame file image data components]
66     --> {4}
67     --> [nitf-rpf mask subsection] (0, 1)
68     --> [nitf-rpf image display parameter sub-header]
69     --> [nitf-rpf compression section] (0, 1)
70     --> [nitf-rpf spatial data subsection]

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71     {1}
72     [nitf symbol] (0, ... many)
73     [nitf label] (0, ... many)
74     [nitf text] (0, ... many)
75     [nitf data extension segment] (0, ... many)
76     {2}
77     [nitf data extension sub-header]
78     {3}
79     [nitf identification and security group]
80     <nitf user-defined data extension sub-header length>,numr:4
81     [nitf user-defined data extension sub-header] (0, 1) (omitted in rpf
82 files)
83     [nitf user-defined data extension group] DESDATA
84     {5}
85     [nitf tagged record for rpf] (0, 1) (may be present in rpf files)
86     {6}
87     <nitf record tag for rpf>.alph:6
88     <nitf tagged record length for rpf>,numr:5
89     --> [rpf frame file components]
90     {7}
91     --> [rpf attribute section]
92     --> [rpf replace/update section]
93     {5}
94     [nitf additional tagged records] (0, ... many) (omitted in rpf files)
95     {1}
96     [nitf reserved segment] (0, ... many)

```

97 APPENDIX 30. DETAILED EXAMPLE OF NITF STRUCTURE INTEGRATED WITH RPF
98 FRAME FILE STRUCTURE (ELEMENTARY FIELDS INCLUDED).

```
99
100
101 [NITF file]
102   {1}
103   [NITF file header]
104     {2}
105     [nitf identification and origination group]
106       {3}
107       <nitf file type and version>,alnm:9
108       <nitf compliance level>numr:2
109       <nitf system type>,alnm:4
110       <nitf originating station ID>,alnm:10
111       <nitf file date and time>,alnm:14
112       <nitf file title>,alnm:80
113     {2}
114     [nitf security group]
115       {3}
116       <nitf file security classification>,alph:1
117       <nitf file codewords>,alnm:40
118       <nitf file control and handling>,alnm:40
119       <nitf file releasing instructions>,alnm:40
120       <nitf file classification authority>,alnm:20
121       <nitf file security control number>,alnm:20
122       <nitf file security downgrade>,alnm:6
123       <nitf file downgrading event>,alnm:40 (0, 1)
124       <nitf message copy number>,numr:5
125       <nitf message number of copies>,numr:5
126       <nitf encryption>,numr:1
127       <nitf originator's name>,alph:27
128       <nitf originator's phone number>,alnm:18
129     {2}
130     <nitf file length>,numr:12
131     <nitf header length>,numr:6
132     [nitf image description group]
```

```
133         {3}
134         <nitf number of image length records>,numr:3
135         [nitf image length record] (0, ... many)
136         {4}
137         <nitf image sub-header length>,numr:6
138         <nitf image data length>,numr:10
139     {2}
140     [nitf symbol description group]
141     {3}
142     <nitf number of symbol length records>,numr:3
143     [nitf symbol length record] (0, ... many)
144     {4}
145     <nitf symbol sub-header length>,numr:4
146     <nitf symbol data length>,numr:6
147 {2}
148 [nitf label description group]
149 {3}
150 <nitf number of label length records>,numr:3
151 [nitf label length record] (0, ... many)
152 {4}
153 <nitf label sub-header length>,numr:4
154 <nitf label data length>,numr:3
155 {2}
156 [nitf text description group]
157 {3}
158 <nitf number of text length records>,numr:3
159 [nitf text length record] (0, ... many)
160 {4}
161 <nitf text sub-header length>,numr:4
162 <nitf text data length>,numr:5
163 {2}
164 [nitf data extension segment description group]
165 {3}
166 <nitf number of data extension segment length records>,numr:3
167 [nitf data extension segment length record] (0, ... many)
168 {4}
```

```
169         <nitf data extension segment sub-header length>,numr:4
170         <nitf data extension segment data length>,numr:9
171     {2}
172 [nitf reserved segment description group]
```

```

173         {3}
174         <nitf number of reserved segment length records>,numr:3
175         [nitf reserved segment length record] (0, ... many)
176         {4}
177         <nitf reserved segment sub-header length>,numr:4
178         <nitf reserved segment data length>,numr:7
179     {2}
180     <nitf user-defined header length>,numr:5
181     [nitf user-defined header]
182         {3}
183         <nitf user-defined header overflow>,numr:3
184         <nitf user-defined header data tag>.alph:6
185         <nitf user-defined header data length>,numr:5
186         [nitf user-defined header data] UDHD
187         {4}
188         --> [rpf frame file components]
189             {5}
190             --> [rpf header section]
191                 {6}
192                 <rpf little/big endian indicator>,bool:1
193                 <rpf header section length>,uint:2
194                 <rpf file name>,ascii:12
195                 <rpf new/replacement/update indicator>,uint:1
196                 <rpf governing specification number>,ascii:15
197                 <rpf governing specification date>,ascii:8
198                 <rpf security classification>,ascii:1
199                 <rpf security country/international code>,ascii:2
200                 <rpf security release marking>,ascii:2
201                 <rpf location section location>,uint:4
202         {2}
203         [nitf extended header description group]
204         {3}
205         <nitf extended header length>,numr:5
206         <nitf extended header data>,numr:var (0, 1)
207     {1}
208     [nitf image] (0, ... many)

```

209

{2}

210

[nitf image sub-header]

```
211 {3}
212 [nitf identification, security, structure fields]
213 {4}
214 <nitf file part type>,alph:2
215 <nitf image ID>,alnm:10
216 <nitf image date and time>,alnm:14
217 <nitf target ID>,alph:17
218 <nitf image title>,alnm:80
219 <nitf image security classification>,alph:1
220 <nitf image codewords>,alnm:40
221 <nitf image control and handling>,alnm:40
222 <nitf image releasing instructions>,alnm:40
223 <nitf image classification authority>,alnm:20
224 <nitf image security control number>,alnm:20
225 <nitf image security downgrade>,alnm:6
226 <nitf image downgrading event>,alnm:40 (0, 1)
227 <nitf encryption>,numr:1
228 <nitf image source>,alnm:42
229 {4} (continued)
230 <nitf number of significant rows in image>,numr:8
231 <nitf number of significant columns in image>,numr:8
232 <nitf pixel value type>,alnm:3
233 <nitf image representation>,alnm:8
234 <nitf image category>,alnm:8
235 <nitf actual bits per pixel per band>,numr:2
236 <nitf pixel justification>,alph:1
237 <nitf image coordinate system>,alph:1
238 {3}
239 [nitf image geographic location]
240 {4}
241 [nitf image geographic coordinate] (4)
```

```

242         {5}
243         <nitf latitude degrees>,numr:2
244         <nitf lattitude minutes>,numr:2
245         <nitf latitude seconds>,numr:2
246         <nitf latitudinal hemisphere>,alph:1
247         <nitf longitude degrees>,numr:3
248         <nitf longitude minutes>,numr:2
249         <nitf longitude seconds>,numr:2
250         <nitf longitudinal hemisphere>,alph:1
251     {3}
252     [nitf comments]
253         {4}
254         <nitf number of image comment records>,numr:1
255         <nitf image comment record>,alnm:80 (0, ... 9)
256     {3}
257     [nitf image compression structure]
258         {4}
259         <nitf image compression>,alnm:2
260         <nitf compression rate code>,alnm:4 (0, 1)
261         <nitf number of bands>,numr:1
262     {3}
263     [nitf image band] (1, ... 9)
264         {4}
265         <nitf band representation>,alnm:2
266         <nitf band significance for image category>,alnm:6
267         <nitf image filter condition>,alph:1
268         <nitf standard image filter code>,alnm:3
269         <nitf number of lookup tables>,numr:1
270         <nitf number of lookup table entries>,numr:5
271         [nitf lookup table] (0, ... 4)
272             {5}
273             [nitf lookup entry] (1, ... many)
274                 {6}
275                 <nitf lookup data>,alnm:var (one byte per entry per band)
276     {3}
277     [nitf image table structure fields]

```

```

278         {4}
279         <nitf image sync code>,numr:1
280         <nitf image mode>,alph:1
281         <nitf number of blocks per row>,numr:4
282         <nitf number of blocks per column>,numr:4
283         <nitf number of pixels per block horizontal>numr:4
284         <nitf number of pixels per block vertical>numr:4
285         <nitf number of bits per pixel per band>numr:2
286         <nitf display level>numr:3
287         <nitf attachment level>numr:3
288     {3}
289     [nitf image location]
290         {4}
291         <nitf row offset>,snum:5
292         <nitf column offset>,snum:5
293     {3}
294     <nitf image magnification>,alnm:4
295     <nitf user-defined image subheader length>,numr:5
296     [nitf user-defined image subheader]
297         {4}
298         <nitf user-defined image subheader overflow>,numr:3
299         <nitf user-defined image subheader tag>.alph:6
300         <nitf user-defined image subheader data length>,numr:5
301         [nitf user-defined image subheader data] UDID
302         {5}
303     --> [rpf frame file components]
304         {6}
305         --> [rpf location section]
306             {7}
307             <rpf location section length>,uint:2
308             <rpf component location table offset>,uint:4
309             <rpf number of component location records>,uint:2
310             <rpf component location record length>,uint:2
311             <rpf component aggregate length>,uint:4
312             [rpf component location table]
313             {8}

```



```

315             {9}
316             <rpf component id>,uint:2
317             <rpf component length>,uint:4
318             <rpf component location>,uint:4
319         {6}
320     [rpf coverage section] (0, 1)
321         {7}
322     [rpf coverage section subheader]
323         {8}
324         <rpf northwest/upper left latitude>,real:8
325         <rpf northwest/upper left longitude>,real:8
326         <rpf southwest/lower left latitude>,real:8
327         <rpf southwest/lower left longitude>,real:8
328         <rpf northeast/upper right latitude>,real:8
329         <rpf northeast/upper right longitude>,real:8
330         <rpf southeast/lower right latitude>,real:8
331         <rpf southeast/lower right longitude>,real:8
332         <rpf north-south/vertical resolution>,real:8
333         <rpf east-west/horizontal resolution>,real:8
334         <rpf latitude/vertical interval>,real:8
335         <rpf longitude/horizontal interval>,real:8
336     {6}
337 --> [rpf color/grayscale section] (0, 1)
338         {7}
339     [color/grayscale section subheader]
340         {8}
341         <rpf number of color/grayscale offset records>,uint:1
342         <rpf number of color converter offset records>,uint:1
343         <rpf external color/grayscale file name>,ascii:12
344     {7}
345     [rpf colormap subsection] (0, 1)
346         {8}
347         <rpf colormap offset table offset>,uint:4
348         <rpf color/grayscale offset record length>,uint:2
349     [rpf colormap offset table]
350         {9}

```

[rpf color/grayscale offset record] (1, ... many)

```

352         {10}
353         <rpf color/grayscale table id>,uint:2
354         <rpf number of color/grayscale records>,uint:4
355         <rpf color/grayscale element length>,uint:1
356         <rpf histogram record length>,uint:2
357         <rpf color/grayscale table offset>,uint:4
358         <rpf histogram table offset>,uint:4
359     {8}
360     [rpf color/grayscale element group]
361         {9}
362         [rpf color/grayscale table] (1, ... many)
363             {10}
364             [rpf color/grayscale record] (1, ... many)
365                 {11}
366                 <rpf color/grayscale element>,byte:var
367     {8}
368     [rpf histogram element group] (0, 1)
369         {9}
370         [rpf histogram table] (1, ... many)
371             {10}
372             [rpf histogram record] (1, ... many)
373                 {11}
374                 <rpf histogram element>,uint:4
375 {7}
376 [rpf color converter subsection] (0, 1)
377     {8}
378     <rpf color converter offset table offset>,uint:4
379     <rpf color converter offset record length>,uint:2
380     <rpf color converter record length>,uint:2
381     [rpf color converter offset table]
382         {9}
383         [rpf color converter offset record] (1, ... many)
384             {10}
385             <rpf color converter table id>,uint:2
386             <rpf number of color converter records>,uint:4
387             <rpf color converter table offset>,uint:4

```

388
389

<rpf source color/grayscale offset table offset>,uint:4
<rpf target color/grayscale offset table offset>,uint:4

```

390         {9}
391         [rpf color converter table] (1, ... many)
392         {10}
393         [rpf color converter record] (1, ... many)
394         {11}
395         <rpf target color/grayscale table entry number>,uint:4
396     {6}
397 --> [rpf image description sub-header]
398     {7}
399     <rpf number of spectral groups>,uint:2
400     <rpf number of subframe tables>,uint:2
401     <rpf number of spectral band tables>,uint:2
402     <rpf number of spectral band lines per image row>,uint:2
403     <rpf number of subframes in east-west or left-right direction>,uint:2
404     <rpf number of subframes in north-south or up-down direction>,uint:2
405     <rpf number of output columns per subframe>,uint:4
406     <rpf number of output rows per subframe>,uint:4
407     <rpf subframe mask table offset>,uint:4
408     <rpf transparency mask table offset>,uint:4
409     {6}
410 --> [rpf related images section] (0, 1)
411     {7}
412     [rpf related image section subheader]
413     {8}
414     <rpf related image description table offset>,uint:4
415     <rpf number of related image description records>,uint:2
416     <rpf related image description record length>,uint:2
417     {7}
418     [rpf related images subsection]
419     {8}
420     [rpf related image description table]
421     {9}
422     [rpf related image description record] (2, ... many)
423     {10}
424     <rpf related image file name>,ascii:12
425     <rpf related image pathname offset>,uint:4

```

```
426         <rpf relationship code>,uint:4
427     {8}
428     [rpf related image pathname table]
```

```

429             {9}
430             [rpf related image pathname record] (2, ... many)
431             {10}
432             <rpf related image pathname length>,uint:2
433             <rpf related image pathname>,ascii:var
434         {3}
435         [nitf extended image sub-header group]
436         {4}
437         <nitf extended image sub-header data length>,alnm:5
438         <nitf extended image sub-header overflow>,numr:3 (0, 1)
439         <nitf extended image sub-header data>,byte:var (0, 1)
440     {2}
441     [nitf image data]
442     {3}
443     <nitf spatial data offset>,uint:4 (0, 1) (offset of [nitf-rpf spatial
444 data
445     subsection] from [nitf image data]; present only for masked images.)
446     --> [nitf-rpf frame file image data components]
447     {4}
448     --> [nitf-rpf mask subsection] (0, 1)
449     {5}
450     [nitf-rpf mask subheader]
451     {6}
452     <nitf-rpf subframe sequence record length>,uint:2
453     <nitf-rpf transparency sequence record length>,uint:2
454     <nitf-rpf transparent output pixel code length>,uint:2
455     /nitf-rpf transparent output pixel code/,bits:var (0, 1)
456     {5}
457     [nitf-rpf subframe mask table] (0, 1)
458     {6}
459     [nitf-rpf subframe mask spectral group] (1, ... many)
460     {7}
461     [nitf-rpf subframe mask row] (1, ... many)
462     {8}
463     [nitf-rpf subframe sequence record](1, ... many)
464     {9}

```

465

<nitf-rpf subframe offset>,uint:4

```

466         {5}
467         [nitf-rpf transparency mask table] (0, 1)
468         {6}
469         [nitf-rpf transparency mask spectral group] (1,... many)
470         {7}
471         [nitf-rpf transparency mask row] (1, ... many)
472         {8}
473         [nitf-rpf transparency sequence record] (1, ... many)
474         {9}
475         <nitf-rpf subframe offset>,uint:4
476     {4}
477 --> [nitf-rpf image display parameter sub-header]
478     {5}
479     <nitf-rpf number of image rows>,uint:4
480     <nitf-rpf number of image codes per row>,uint:4
481     <nitf-rpf image code bit length>,uint:1
482 {4}
483 --> [nitf-rpf compression section] (0, 1)
484     {5}
485     [nitf-rpf compression section subheader]
486     {6}
487     <nitf-rpf compression algorithm id>,uint:2
488     <nitf-rpf number of compression lookup offset records>,uint:2
489     <nitf-rpf number of compression parameter offset records>,uint:2
490     {5}
491     [nitf-rpf compression lookup subsection] (0, 1)
492     {6}
493     <nitf-rpf compression lookup offset table offset>,uint:4
494     <nitf-rpf compression lookup table offset record length>,uint:2
495     [nitf-rpf compression lookup offset table]
496     {7}
497     [nitf-rpf compression lookup offset record](1, ... many)

```

```

498         {8}
499         <nitf-rpf compression lookup table id>,uint:2
500         <nitf-rpf number of compression lookup records>,uint:4
501         <nitf-rpf number of values per compression lookup record>,uint:2
502
503         <nitf-rpf compression lookup value bit length>,uint:2
504         <nitf-rpf compression lookup table offset>,uint:4
505     {6}
506     [nitf-rpf compression lookup table] (1, ... many)
507     {7}
508     [nitf-rpf compression lookup record] (1, ... many)
509     {8}
510     /nitf-rpf compression lookup value/,bits:var (1, ... many)
511 {5}
512 [nitf-rpf compression parameter subsection] (0, 1)
513     <nitf-rpf compression parameter offset table offset>,uint:4
514     <nitf-rpf compression parameter offset record length>,uint:2
515     {6}
516     [nitf-rpf compression parameter offset table]
517     {7}
518     [nitf-rpf compression parameter offset record] (1, ... many)
519     {8}
520     <nitf-rpf compression parameter id>,uint:2
521     <nitf-rpf compression parameter record offset>,uint:4
522     {6}
523     [nitf-rpf compression parameter record] (1, ... many)
524     {7}
525     <nitf-rpf compression parameter value>,byte:var
526 {4}
527 --> [nitf-rpf spatial data subsection]
528     {5}
529     [spectral group] (1, ... many)
530     {6}
531     [nitf-rpf subframe table] (1, ... many)
532     {7}
533     [nitf-rpf spectral band table] (1, ... many)

```

534
535

```
{8}  
[nitf-rpf image row] (1, ... many)
```

```

536                                     {9}
537                                     [nitf-rpf spectral band line] (1, ... many)
538                                     {10}
539                                     /nitf-rpf image code/,bits:var (1, ... many)
540 {1}
541 [nitf symbol] (0, ... many)
542 [nitf label] (0, ... many)
543 [nitf text] (0, ... many)
544 [nitf data extension segment] (0, ... many)
545     {2}
546     [nitf data extension sub-header]
547         {3}
548         [nitf identification and security group]
549             {4}
550             <nitf file part type>,alph:2
551             <nitf unique data extension type identifier>,alnm:25
552             <nitf version of the data field definition>,numr:2
553             <nitf data extension security classification>,alph:1
554             <nitf data extension codewords>,alnm:40
555             <nitf data extension control and handling>,alnm:40
556             <nitf data extension releasing instructions>,alnm:40
557             <nitf data extension classification authority>,alnm:20
558             <nitf data extension security control number>,alnm:20
559             <nitf data extension security downgrade>,alnm:6
560             <nitf data extension downgrading event>,alnm:40 (0, 1)
561             [nitf registered extension overflow] (0, 1) (present in rpf files)
562                 {5}
563                 <nitf overflowed header type>,alnm:6
564                 <nitf data item overflowed>,alnm:3
565             {3}
566             <nitf user-defined data extension sub-header length>,numr:4
567             [nitf user-defined data extension sub-header] (0, 1) (omitted in rpf files)
568             [nitf user-defined data extension group] DESDATA
569                 {5}
570                 [nitf tagged record for rpf] (0, 1) (present in rpf files)

```

```

571         {6}
572         <nitf record tag for rpf>.alph:6
573         <nitf tagged record length for rpf>,numr:5
574     --> [rpf frame file components]
575         {7}
576     --> [rpf attribute section]
577         {8}
578         [rpf attribute section subheader]
579             {9}
580             <rpf number of attribute offset records>,uint:2
581             <rpf number of explicit areal coverage records>,uint:2
582             <rpf attribute offset table offset>,uint:4
583             <rpf attribute offset record length>,uint:2
584         {8}
585         [rpf attribute subsection]
586             {9}
587             [rpf attribute offset table]
588                 {10}
589                 [rpf attribute offset record] (1, ... many)
590                     {11}
591                     <rpf attribute id>,uint:2
592                     <rpf parameter id>,uint:1
593                     <rpf areal coverage sequence number>,uint:1
594                     <rpf attribute record offset>,uint:4
595             {9}
596             [rpf attribute table]
597                 {10}
598                 [rpf attribute record] (1, ... many)
599                     {11}
600                     <rpf parameter value>,byte:var (1, ... many)
601         {8}
602         [rpf explicit areal coverage subsection] (0, 1)
603             {9}
604             <rpf explicit areal coverage table offset>,uint:4
605             <rpf explicit areal coverage record length>,uint:2
606             <rpf corner coordinates record length>,uint:2

```



```

608         {10}
609         [rpf explicit areal coverage record] (1, ... many)
610         {11}
611         <rpf number of vertices>,uint:2
612         [rpf corner coordinates record] (1, ... many)
613         {12}
614         <rpf lat>,real:8
615         <rpf long>,real:8
616     {7}
617 --> [rpf replace/update section] (0, 1)
618     {8}
619     [rpf replace/update section subheader]
620     {9}
621     <rpf replace/update table offset>,uint:4
622     <rpf number of replace/update records>,uint:2
623     <rpf replace/update record length>,uint:2
624     {8}
625     [rpf replace/update subsection]
626     {9}
627     [rpf replace/update table]
628     {10}
629     [rpf replace/update record] (1, ... many)
630     {11}
631     <rpf new file name>,ascii:12
632     <rpf old file name>,ascii:12
633     <rpf replace/update status>,uint:1
634     {5}
635     [nitf additional tagged records] (0, ... many) (omitted in rpf files)
636 {1}
637 [nitf reserved segment] (0, ... many)
638
639

```